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### Collaboration between pharmacists, physicians and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting

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## Collaboration between pharmacists, physicians and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting

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### Abstract

While collaborative, team-based care has the potential to improve medication use and reduce adverse drug events and cost, less attention is paid to understanding the processes of well functioning teams. This paper presents the findings from key informant interviews and reflective journaling from pharmacists, physicians and nurse practitioners participating in a multicentre, controlled clinical trial of team-based pharmacist care in hospitalized medical patients. A phenomenological approach guided the data analysis and content analysis was the primary tool for unitizing, categorizing and identifying emerging themes. Pharmacists experienced highs (developing trusting relationships and making positive contributions to patient care) and lows (struggling with documentation and workload) during integration into the medical care team. From the perspective of the participating pharmacists, nurse practitioners and physicians, the integration of pharmacists into the teams was felt to have facilitated positive patient outcomes by improving team drug-therapy decision-making, continuity of care and patient safety. Additionally, the study increased the awareness of all team members' potential roles so that pharmacists, nurses and physicians could play a part in and benefit from working together as a team. Focussed attention on how practice is structured, team process and ongoing support would enable successful implementation of team-based care in a larger context. (ClinicalTrials.gov number, NCT00351676)

**Keywords:** *Patient care team, pharmacists, internal medicine, qualitative study*

### Introduction

Collaborative care, defined as a “joint communicating and decision-making process with the goal of satisfying the patient’s wellness and illness needs while respecting the unique abilities of each professional” has the potential to improve patient care, enhance patient safety and

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reduce workload issues that cause burnout among healthcare professionals (Oandasan et al., 2006). Although there are controversial reports that pharmacist care has little or negative impact on patient outcomes (R. Holland et al., 2005, 2007, 2008; O'Dell & Kucukarslan, 2005; Royal et al., 2006; Salter et al., 2007; Van Wijk et al., 2005) several recent studies and systematic reviews have documented that care provided by pharmacists improves patient outcomes (Beney et al., 2000; Bond et al., 2001; Dranitsaris et al., 2001; Ellis et al., 2000; Gattis et al., 1999; Hanlon et al., 1996; Kaboli et al., 2006; Koshman et al., 2008; Kucukarslan et al., 2003; Leape et al., 1999; Morrison & Wertheimer, 2001; Pickard et al., 1999; Schumock et al., 2003; Tsuyuki et al., 2002). Many of these studies provide indirect evidence of the benefit of health care professionals working together as a team

Recently, there has been great interest in promoting collaborative practice between pharmacists, physicians and nurses. This is evidenced by the increased implementation and study of new models of collaborative practice in primary care settings in several continental European countries, (Eickhoff & Schulz, 2006; Guignard & Bugnon, 2006; Herborg et al., 2007) the United Kingdom, (Department of Health, 2005; Noyce, 2007) several States in the USA (Hammond et al., 2003) and the Canadian provinces of Ontario (Dolovich et al., 2008) and Alberta ("Alberta's Primary Care Initiative", 2008). In Alberta, the focus on collaborative practice is also occurring at an educational level with the Interprofessional Initiative at the University of Alberta (Philippon et al., 2005) and at an organizational level as evidenced by the recent joint meeting of the Albert College of Pharmacists, Alberta Medical Association, Alberta Pharmacists Association, College & Association of Registered Nurses of Alberta, and the College of Physicians and Surgeons of Alberta ("Historic Tri-Profession Conference Focuses on Improving Patient Care", 2007).

Teams of healthcare professionals, including pharmacists, have existed in the inpatient medical setting at other institutions for years (Smith, 2007). However, in our institutions, clinical pharmacists have typically not been part of the core patient care team. We conducted the Capturing Outcomes of Clinical Activities Performed by a Rounding Pharmacist Practicing in a Team Environment (COLLABORATE) study to determine the impact of assigning a clinical pharmacist to work directly with the medical team on patient and process of care outcomes. Briefly, COLLABORATE was a controlled trial that enrolled hospitalized patients admitted to two inpatient internal medicine and two inpatient primary healthcare teams (PHCT) at three tertiary care teaching hospitals between 30 January 2006 and 2 February 2007 in Edmonton, Alberta, Canada. Two pharmacists were hired to work with a variety of teams, to provide proactive clinical pharmacy services, modeled on the philosophy of pharmaceutical care (Hepler & Strand, 1990) on a rotating basis as part of the medical team (see Tables I & II). This initiative provided us with an opportunity to study several issues around interdisciplinary team care, specifically how to create, develop and maintain effective healthcare teams.

Collaborative working relationships between nurses and physicians have been the focus of several research reports, e.g. San Martin-Rodriguez et al., 2005, but relatively little work has investigated the integration and nature of collaborative relationships pharmacists have with other health care practitioners (Brock & Doucette, 2004; Dobson et al., 2006; Howard et al., 2003; Zillich et al., 2006). Most studies have investigated physician satisfaction attitudes or perceptions towards specific aspects of pharmacy practice, pharmacist roles (Muijters et al., 2003; Ranelli & Biss, 2000; Tanskanen et al., 2000) or pharmacy services in general (Lobas et al., 1991; Sansgiry et al., 2003; Sulick & Pathak, 1996; Bislew & Sorensen, 2003; Bradshaw & Doucette, 1998; Matsumoto et al., 2003). Others have identified and explored perceived barriers between physicians and community pharmacists (Hughes & McCann, 2003), unmet needs in the medication use process (Law et al., 2003), physician expectations of pharmacists (Smith et al., 2002) and physician receptiveness to clinical pharmacist

Table I. Site characteristics and interview participants.

Pharmacist	Type of team	Hospital	Team members	Comments	Interview participants ( <i>n</i> )	
					Physicians	Nurse practitioners
Pharmacist 1	Internal medicine CTU	C	Attending physician (Specialist internist, 1 week service rotation) Medical residents and students (4–6 week service rotation)	Well established team	4	–
	Inpatient PHCT	C	General practitioner (1 week service rotation) Nurse practitioner	Well established team	2	1
Pharmacist 2	Internal medicine CTU	A	Attending physician (2 week service rotation) Medical residents (senior and junior) and students (4–6 week service rotation)	Well established team Pharmacist 2 worked on this unit prior to the study	5	–
	Inpatient PHCT	B	General practitioner (1 week service rotation) Nurse practitioner	New team	2	1
Total					13	2

CTU, Clinical teaching unit; PHCT, Primary health care team.

*Note:* The selection of the two participating internal medicine and two family medicine teams was purposeful in that patients admitted to these types of teams in general are known to have medication related issues amenable to pharmacist intervention and there was a general receptiveness from the lead physicians from each service to clinical pharmacist services.

Table II. Study pharmacist roles.

#### *Proactive Clinical Pharmacist Services*

- Clarification and documentation of pharmacotherapy history at admission
- Participation in bedside patient care rounds on a daily basis
- Identification and resolution of actual and potential drug-related problems
- Communication of patient-specific therapeutic recommendations to the team
- Ensured patients were discharged on appropriate drug therapy
- Patient medication education
- Written communication with the patient's community pharmacist or general practitioner
- Documentation of drug therapy recommendations and monitoring plans in the patient care record

#### *Additional Details*

- Service provided Monday through Friday during normal daytime hours
- Study pharmacist had no drug distribution responsibilities
- Pharmacist prescribing was based on institution specific policies and was limited mostly to automatic formulary substitutions

services (Smith et al., 2002). Our study explored: the integration process of a clinical pharmacist within a health care team; pharmacist, physician, and nurse practitioner experiences around working as a team and associated perceptions of success, challenges, and ideas for innovation; and continuous professional learning needs including training in

knowledge, skills and values required by these healthcare professionals as a result of the establishment of collaborative interdisciplinary care teams.

## **Methods**

This study employed mixed methods including reflective journaling and key informant interviews. A phenomenological approach was used by researchers to collect qualitative data (Morse & Richards, 2002; Schwandt, 2001). Phenomenology can be understood as the study of everyday things from the perspective of the subject (Schwandt, 2001). This understanding was used to explore the nature and extent of the collaborative working relationships the physicians, nurses and pharmacists developed during the study period. The meaning of study participants' experiences and the effectiveness of the interaction that resulted between them were two key elements that were investigated in this study. Reflective journals and semi-structured interviews were the primary data collection methods utilized.

The pharmacists who participated in the study completed reflective journals. These weekly reflections provided day-to-day examples of facilitators of the collaborative process, the challenges being faced and the pharmacy contribution to patient care. Interviews with those who had shared collaborative working experiences provided detailed disciplinary perspectives on role functions, the integration process within each team and the perception of pharmacy's overall contribution to patient care. The COLLABORATE study protocol, including this sub-study was reviewed and approved by the Ethics Review Board of the University of Alberta. This trial was registered at ClinicalTrials.gov, number NCT00351676.

### *Reflective journaling & reflective summaries*

The study pharmacists completed weekly electronic journals from December 2006 through January 2007 using a template modeled after Brookfield, 1995 (Appendix). Although the pharmacists received no formal training on reflective writing, they were briefed on the purpose and use of the template and received support and encouragement from the investigators during the period of the journaling activity. The final reflective summary was completed during the last two weeks of the study period. Here the pharmacists summarized their entire experience from January 2006 to February 2007. This included reflecting on how their experiences evolved from the beginning of the study to the end of the study, contrasting the different approaches in internal medicine and family medicine, and identifying what they viewed as their important contributions to patient care. Both the weekly and final reflective summary journals were subjected to content analysis.

### *Key informant interviews*

Each pharmacist, physician, medical residents and nurse practitioner received e-mail invitations to participate in a semi-structured, face-to-face interview. Physicians, medical residents, and nurse practitioners who had significant contact with the study pharmacist were identified using the physician ward and call schedule. Physicians and nurse practitioners who agreed to participate were offered a \$75 honorarium.

The interview questions were designed to tap the six key areas identified in the reflective journaling template: practice environment, innovations, challenges/barriers, interactions/relationships and any additional elements that arose from the study pharmacists' weekly journals. Questions for the physicians and nurse practitioners explored prior experience

working with teams, pharmacist's role and contribution, challenges to team functioning, expanding practice role of pharmacy and professional development needs to support collaborative practice. A guide for the interviews was developed and pilot tested. The key informant interviews were conducted within three months of the completion of the study; the majority over a period of four weeks.

All interviews were conducted by an experienced interviewer and were recorded, transcribed and subjected to content analysis. The sample size for the physician/nurse practitioner portion of the protocol was not set *a priori*. Sampling new sources continued up to, the point at which saturation was reached.

### *Content analysis process*

All transcripts were independently coded and categorized by one of the co-investigators (COI1) and the graduate research assistant (GRA). The results of the initial analysis of 17 transcripts were cross-checked for consistency and emerging themes. The principal investigator (PI) independently analysed three transcripts and the results were crosschecked against the COI1 and GRA analyses.

The reflective journaling template and the semi-structured interview guides provided a foundation for the unitizing and categorizing exercise; these guides enhanced the consistency of interpretation. The PI, COI1, and GRA compared their emerging themes and ensured that the final list was representative of the participants' perspectives. COI1 and the GRA completed the content analysis of the remaining transcripts and prepared graphic representations of the categorization and emerging themes.

The study pharmacists' reflective summaries were not initially shared with COI1 and the GRA. These summaries were subjected to the same content analysis process by the PI and another co-investigator (COI2) as part of the triangulation process. Analysis of data from more than one source by more than one investigator is designed to enhance the trustworthiness of the results.

### *Description of interviewees*

Two pharmacists, 13 physicians and two nurse practitioners agreed to be interviewed and summaries of the pharmacists' weekly journals were submitted (Table I). The participants represented the various professionals and areas that the pharmacists worked with most directly. Interviews typically lasted between 15–30 minutes with physicians and nurse practitioners and between 1–2 hours with the pharmacists. Ten of 13 physicians were male while the three remaining physicians, nurse practitioners and pharmacists were female. Three of the physicians were medical residents and one of the nurse practitioners was in training. Both study pharmacists had undergraduate degrees in pharmacy, had completed hospital pharmacy residency training and had practiced as clinical pharmacists in the hospital setting prior to participating in the COLLABORATE study. Pharmacist 1 had practiced in the area of intensive care for eight years, while Pharmacist 2 had a total of five years of experience in intensive care and internal medicine settings. Both had previously been members of the intensive care unit (ICU) multidisciplinary team and attended daily ICU patient care rounds on a regular basis. These two particular pharmacists were selected to provide clinical care as part of the overall project via an interview process from a pool of pharmacist applicants. The overall consistency of the narratives provided by the study participants attests to the credibility and trustworthiness of the information obtained.

## Results

Four major themes related to pharmacist integration into the core health care teams emerged in the findings:

- Team processes,
- Impact on patient care,
- Organizational and practice structure,
- Professional development.

### *Team processes*

Team processes, specifically role clarity and relationships built on mutual respect and trust, were essential to successful integration and collaboration.

*Role clarity.* Role clarity is vital for effective teams as team members need to know what they can expect from each other. One of the most significant challenges faced by the study pharmacists was their perception that physicians and nurse practitioners were not aware of the pharmacist's clinical role. This was particularly evident with the general practitioners who were part of primary health care teams and who interacted primarily with community-based pharmacists rather than hospital-based pharmacists.

... I did find that internists were drawing more on their previous experience with hospital pharmacists in order to relate to my role on the team, whereas family doctors spoke more about their relationships with community pharmacists. In that regard, I may have had to explain and demonstrate my role to some of the family doctors a bit more, since the nature of hospital pharmacy practice can be so different from community pharmacy. (Pharmacist 1)

An initial perception by physicians was that the role of the pharmacist was to "check up" on the team.

When [the pharmacist] was introduced to all the people on the three teams, there was a certain sense of unease that somebody who we didn't know was checking up on what we were doing ... once we learned that she wasn't [being] critical, she was simply giving us opportunities where we might do things better, that motivated us. (Physician 3)

When roles and expectations were clearly defined and other healthcare professionals understood areas of pharmacist "competency" teamwork was facilitated.

Our team admitted eight new patients overnight, so we did a "divide and conquer" approach. The doctor and the nurse saw our existing patients and I went to the ER to see the new patients. By the time they came down to the ER, I had assessed and seen most of the patients. The doctor and I then briefly reviewed and saw each patient and I presented all of my recommendations ... The process was very efficient and collaborative – perhaps even more than it would have been if we all stuck together as a group that day. (Pharmacist 1)

When roles were not well defined, teamwork was challenged.

... there is a higher level of resistance from GPs to implement my medication-related suggestions. It's not so much that they don't accept them: they just do not wish to take on the responsibility of implementing them. (Pharmacist 2)

Depending on the composition of the team, the pharmacist role may change.

When it comes to working with internists ... I find that there is less room for me to make a large impact as they are largely aware of a particular patient's 'therapeutic deficiencies' and have a wide scope of knowledge/expertise ... When I worked with these physicians, I found that I had a role in making medication-related suggestions in their non-specialty area (i.e., making suggestions with regards to cardiac medications when I worked with a kidney specialist). (Pharmacist 2)

Some viewed the role of the pharmacist more broadly, rather than providing direct, one to one, patient care.

... to me, I think the limited resources that we have and the high degree of expertise can have a much bigger impact on patient care in general if they [pharmacists] spend more of their time looking at practice patterns and algorithms and standards of practice, than at looking at one case at a time. So I would see the job description as being much more, for want of a better term, epidemiological, or health-services focused, including errors and setting up standards of practice and quality assurance. For instance, what is the standard practice for this hospital for the use of bronchodilators and anticholinergics or even steroids in a routine admission of COPD; we haven't developed those protocols. Having someone of a pharmacological background helping to develop those protocols would have a much bigger impact on care across the institution than having them review what's being done on a case-by-case basis. (Physician 12)

Team members reported increased awareness of the clinical role of the pharmacist.

The largest single success that can be taken from this study is that for the most part all of the participants learned something more about the knowledge pharmacists have. (Nurse Practitioner 2)

I think that we all learned that we owe so much more respect than perhaps we previously had to pharmacists, the role they played and the knowledge they had. (Physician 3)

However, there was a perception among the pharmacists that some health care professionals placed a greater value on their dispensing function.

I find that too often that the value of a pharmacist is linked to a dispensing function, and although we've made much headway, we have more work to do until the value of a pharmacist is linked to clinical functioning ... (Pharmacist 2)

*Mutual respect and relationships built on trust.* Development of mutual respect and trust between practitioners was seen as another essential component contributing to success.



Teamwork was facilitated when pharmacists were able to work with the same physicians again and again so that a relationship could be developed.

... There is a direct correlation between my overall comfort level with each physician and the time I spent with each physician. Generally speaking, this plays out practically as an increase in comfort making medication-related suggestions and taking on increased patient care responsibility on my part, and an increase in acceptance of suggestions and relinquishing patient care responsibilities on the part of the physician. (Pharmacist 2)

However, sometimes respect and trust was there right from the start:

I think that as pharmacists we often anticipate that we won't be well received and that it will take a lot of work to establish our credibility and value. For the most part that has not been my experience with this study. I have been welcomed on to my teams and have been able to positively grow relationships from very good and mutually respectful starting places. (Pharmacist 1)

Some practitioners were not convinced to work within a team environment at all.

[Individuals] that didn't agree with having a rounding pharmacist, that was actually the biggest challenge. Just dealing with people who thought that she shouldn't be there ... created quite a bit of extra work for her ... (Nurse Practitioner 2)

### *Impact on patient care*

The addition of a pharmacist on the team was felt to have had a positive impact on overall patient care. This theme reflects participant's opinions about the success of the team-based approach to patient care. From the pharmacist's perspective there were several instances where they felt they positively contributed to patient care. For example:

A 72-year-old patient was admitted with weakness, lethargy, confusion, and tremor ... In working up the patient, I noted that there was a history of lithium levels being drawn in the community, yet lithium did not appear on the medication history ... I contacted the husband who noted that she had been on lithium for 10 years ... I discovered that her Arthrotec<sup>®</sup> dose was tripled [around the onset of current symptoms] and immediately suspected lithium toxicity secondary to Arthrotec<sup>®</sup>-lithium drug-interaction. We drew a lithium level, which was indeed toxic ... By the following weekend the patient was discharged after a complete resolution of symptoms. (Pharmacist 1)

Physician and nurse practitioner statements that echoed this theme specifically identified that team-based pharmacist care made for better patient care, increased continuity of care led to better decision making, improved patient safety and more efficient provision of care:

[The pharmacist] gave us access [to drug information] and elevated our performance, and hopefully we can maintain that. (Nurse Practitioner 1)

Oh it's just phenomenal. Huge educational benefit for myself and junior residents I was working with and unquestionably safer medical decisions made due to [the pharmacist's] input, and much more clear patient instruction with regard to medication use. (Physician 6)

I always knew the month I was on with [the pharmacist], I wouldn't get phone calls from the pharmacy after patients were discharged in terms of how things went out, and that includes my own errors that I would make . . . (Physician 13)

#### *Organizational and practice structure*

Participants found organizational and practice structures to be barriers to team-based care. Although several aspects of the practice were considered to be important, from the pharmacists' perspective, workload was a significant challenge.

When the case load is too high I feel like I revert to "putting out fires" and becoming reactive, rather than methodically providing good care. (Pharmacist 1)

Physicians recognize that teamwork requires changes to structures and processes to be successful.

It makes no sense to have a curriculum that says that we're going to do things in a multidisciplinary collaborative way, and then when you get into the institution and try to practice that, you find that the institution won't allow you to . . . we never have a chance to establish a working team because we're not working with the same people . . . (Physician 4)

The logistics of getting together as a group impacted teamwork.

. . . [One obstacle occasionally was] the need to include [the pharmacist] in rounds from the start, the communication with [them] about when we were starting and what we were doing. On occasion, we'd start, do one patient and, "Oh crap, we're missing [the pharmacist]. We forgot to let her know". (Physician 13)

From the pharmacists' perspective, the pharmacy department at each hospital could also provide additional support for team-based care by allowing greater flexibility in work schedules.

. . . if you could just make your work day so it fits with what the team does, it kind of makes a little more sense. (Pharmacist 1)

#### *Professional development*

The findings from this sub-study underscore the importance of professional development and learning about how teams function. The pharmacists in this study identified a need for ongoing professional development, support and mentorship.

When you try to break a mould or change . . . people just need a lot of encouragement to go out and do it. (Pharmacist 2)

With respect to team training several physicians commented that teamwork is a skill that can be developed. Role recognition and modelling collaborative practice were central to educational strategies to improve interprofessional collaboration.

I think team building and role definitions or seminars of that sort, making sure that people appreciate the utility and value of taking specific time to re-establish team objectives . . . make sure everyone's skills are being utilized to the utmost . . . make sure there's no

abuse, because there is a differential hierarchy in power in the medical system as it exists right now and make sure that gender issues or age issues or professional training hierarchies don't influence the dynamics, it's really important. (Physician 6)

As a result of the team-based approach, pharmacists had greater job satisfaction.

... It was an immense year of professional growth for me definitely. (Pharmacist 1)

## Discussion

This study describes experiences of individuals who have engaged in collaborative practice by including pharmacists on a medical team. Role definition and relationship development were important issues. Not only did pharmacists feel they contributed positively to patient care, but that this was echoed by other team members. Ensuring that processes are in place to facilitate teamwork both at the team and organizational levels and promoting team training and ongoing pharmacist professional development were seen as important issues in working together successfully as a team.

One of our key findings was that when the pharmacist role was clear and understood by other team members, the pharmacist felt engaged in what was happening with the team and patient care activities. When the role was unclear, unknown, misunderstood or not valued, challenges arose for pharmacists and other team members. Although not explicitly stated in the interviews it appeared that perceptions of the pharmacists' knowledge and competency in this patient care role also factored into successful collaboration. While we allowed roles to evolve on an ad-hoc basis in this study, the care could be improved if there was a formal process to outline and negotiate team members' roles and thus ensure role clarity. Clear priorities for patient care from the pharmacy department (e.g., attending patient care rounds, patient triage, conducting medication histories) would ensure that frontline pharmacists are able to assess whether their services are meeting patient care needs. Role clarity and consensus about team process has the potential to diffuse issues related to professional boundaries even when patient needs far exceed system capacity.

Our findings call attention to a need for systematic support of teams, particularly to ensure that all parties are working towards the same patient goals and that team members communicate effectively and consistently (i.e., in patient care rounds or otherwise). As noted by Johnson and Johnson (1997), placing several people in the same room and telling them to work together to create a team is not sufficient. While the pharmacists in our study spent six months with each internal medicine team the frequent rotation of attending physicians and large number of physicians involved may not have allowed formation of an effective team during certain periods. Given these conditions, the team members may not have had time to develop team structure and positive relationships with other team members. Successful team performance requires careful structuring of cooperation among team members, a structured and supportive environment, availability of expert coaching, opportunities for peer mentoring and high accountability, among others factors (Johnson & Johnson, 1997).

Conceptualizing a healthcare team model as a community of practice suggests elements of collaborative learning (Lave & Wenger, 1998). Communities of Practice may occur through social interaction when people who have a common interest collaborate over an extended period of time to solve problems. In this view, pharmacists working with other healthcare professionals in hospital teams engage as learners in a process of personal and professional transformation that, if appropriately constructed, may have significant impact on

institutional culture. In the social setting of the hospital, participating with others in complex, authentic problem-solving contexts hinges on good communication that encourages shared understanding or shared thinking among team members. Models of team-based care, like in the COLLABORATE study, have potential as a form of cultural learning or collaborative learning (Glaser, 1991; Rogoff, 1990).

We found a willingness by most health care professionals to work together in a team-based manner. While the physician view that pharmacists should focus more attention on the development of critical pathways is one that is endorsed by several pharmacy organizations, there is no evidence to suggest that this approach is superior to direct pharmacist patient care activities (“ASHP Guidelines on the Pharmacist’s Role in the Development, Implementation, and Assessment of Critical Pathways”, 2004; Dobesh et al., 2006). Our findings suggest it is important for physicians to show a strong commitment to provide care within a team framework and that other health care professionals including pharmacists and nurses are well suited to lead the team on a day-to-day basis.

Endorsement of pharmacist services at all levels (e.g., hospital administrators, physicians, nurses, pharmacy administrators) and adequate monetary and staffing resources are essential to the successful implementation of any practice change. Team-based care must become an organizational priority if there is to be any meaningful change within a healthcare organization. Additionally, motivational strategies for individual practitioners are an essential component to supporting practice change (R. W. Holland & Nimmo, 1999).

Support for ongoing professional development is important to facilitate success of the team-based care approach. Since the majority of our participants were not trained in a time where interdisciplinary education was a major focus, attention to team development was important. Ongoing team training and having strong team leadership are critical to successful implementation and maintenance of the team approach to health care.

Despite the fact that pharmacists have been rounding with medical teams in various hospitals throughout North America for the better part of the last four decades, to our knowledge this was the first qualitative study to explore the successes, challenges, and implementation issues when pharmacists work as part of the core health care team in the hospital setting. However, with the recent focus on expanding the pharmacist’s role in primary care, qualitative studies with similar objectives have been conducted with pharmacist and physician teams practicing in a physician’s office or family practice clinic. For example, key issues identified as part of the Seniors Medication Assessment Research Trial (SMART), which investigated expanded role pharmacists in family practices included: pharmacists need to practice their skills, acquire additional training and develop trusting relationships for effective collaboration (Howard et al., 2003).

Results from another Canadian project, Integrating Family Medicine and Pharmacy to Advance Primary Care Therapeutics (IMPACT), evaluating the use of pharmacists in family health care teams suggested that pharmacist experience of integration was characterized as an emotional rollercoaster with successes such as being valued and making concrete contributions to patient care, existing alongside frustrations (feeling underutilized) and fears (being a nuisance, working too slowly) (Farrell et al., 2006). The key support needs identified by these investigators included: mentors, office space, communication tools, and participation in practice meetings or education sessions. From the physician perspective, concerns were primarily in the sphere of medico-legal issues and workflow issues.

While there are little data specifically looking at pharmacists and teamwork in the hospital setting, considerable amounts of literature exist on teamwork in the healthcare setting in

general. Our findings echo several of the key points identified in the Canadian Health Services Research Foundation (CHSRF) report pertaining to healthcare teams (Oandasan et al., 2006) and there is considerable overlap in the elements needed to support successful collaboration as described by the Ontario College of Family Physicians (Way et al., 2000) specifically in the areas of responsibility and mutual respect and trust and another recent review (San Martin-Rodriguez et al., 2005) and of systemic determinants, organizational determinants and interactional determinants. Therefore, the issues faced in setting up health care teams, including pharmacists, in inpatient internal and family medicine settings are similar to setting up teams in other health care settings including specialized services and primary patient care.

## Conclusion

The integration of pharmacists into core health care teams in internal and family medicine teams appeared to facilitate positive patient outcomes, better team decision making around drug therapy, improved continuity of care and improved patient safety. Pharmacists experienced highs (developing trusting relationships and making positive contributions to patient care) and lows (struggling with documentation and workload) during integration into the medical care team. One of the most important outcomes, however, was increased awareness by team members of the roles that pharmacists, nurses and physicians play and the benefit of working as a team. Increased attention to practice structure, team process and ongoing support would enable successful implementation of team-based care in a larger context.

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## Author contributions

Dr Makowsky had full access to all of the data in the study and takes responsibility for the integrity of the data.

*Study concept and design:* Makowsky, Schindel, Tsuyuki, Madill.

*Acquisition of data:* Rosenthal.

*Analysis and Interpretation:* Makowsky, Rosenthal, Madill.

*Drafting of manuscript:* Makowsky.

*Critical revision of manuscript for intellectual content:* Makowsky, Schindel, Rosenthal, Campbell, Tsuyuki, Madill.

*Obtained funding:* Tsuyuki.

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*Study supervision:* Makowsky, Tsuyuki, Madill.

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This funding source was represented on the steering committee and together with other members provided feedback on study design, conduct, analysis, interpretation and the final report. The sponsor has had no role in the collection, storage, or analysis of the data, and was not involved in the preparation, review or approval the final manuscript or in the decision to submit the data for publication.

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## Appendix

### *Template for Pharmacist Journaling*

- (1) When did you feel most engaged in what was happening?
- (2) When did you feel most distanced from what was happening?
- (3) What action (of others) have you found most affirming or helpful?
- (4) What action (of others) have you found most puzzling or confusing?
- (5) What surprised you the most?
- (6) What did you like the best? (i.e., when did you experience a sense of professional satisfaction?)
- (7) What changes do you think would make this experience better for you? (What changes would you make to enhance your professional experience?)